

including § 73.82 and § 73.83, on a “first-come, first-served” basis, pursuant to § 73.84.

§ 73.86 State regulatory autonomy.

Nothing in this Subpart shall preclude a state or state regulatory authority from providing additional incentives to utilities to encourage investment in any conservation measures or renewable energy generation.

APPENDIX A TO SUBPART F—LIST OF QUALIFIED ENERGY CONSERVATION MEASURES, QUALIFIED RENEWABLE GENERATION, AND MEASURES APPLICABLE FOR REDUCED UTILIZATION

1. Demand-side Measures Applicable for the Conservation and Renewable Energy Reserve Program or Reduced Utilization

The following listed measures are approved as “qualified energy conservation measures” for purposes of the Conservation and Renewable Energy Reserve Program or reduced utilization qualified energy conservation plans under § 72.43 of this chapter. Measures not appearing on the list may also be qualified conservation measures if they meet the requirements specified in § 73.81(a) of this part.

1.1 Residential

1.1.1 Space Conditioning

- Electric furnace improvements (intermittent ignition, automatic vent dampers, and heating element change-outs)
- Air conditioner (central and room) upgrades/replacements
- Heat pump (ground source, solar assisted, and conventional) upgrades/replacements
- Cycling of air conditioners and heat pumps
- Natural ventilation
- Heat recovery ventilation
- Clock thermostats
- Setback thermostats
- Geothermal steam direct use
- Improved equipment controls
- Solar assisted space conditioning (ventilation, air-conditioning, and desiccant cooling)
- Passive solar designs
- Air conditioner and heat pump clean and tune-up
- Heat pipes
- Whole house fans
- High efficiency fans and motors
- Hydronic pump insulation
- Register relocation
- Register size and blade configuration
- Return air location
- Duct sizing
- Duct insulation
- Duct sealing
- Duct cleaning

- Shade tree planting
- 1.1.2 Water Heating**
 - Electric water heater upgrades/replacements
 - Electric water heater tank wraps/blanks
 - Low-flow showerheads and fittings
 - Solar heating and pre-heat units
 - Geothermal heating and pre-heat units
 - Heat traps
 - Water heater heat pumps
 - Recirculation pumps
 - Setback thermostats
 - Water heater cycling control
 - Solar heating for swimming pools
 - Pipe wrap insulation
- 1.1.3 Lighting**
 - Lamp replacement
 - Dimmers
 - Motion detectors and occupancy sensors
 - Photovoltaic lighting
 - Fixture replacement
 - Outdoor lighting controls
- 1.1.4 Building Envelope**
 - Attic, basement, ceiling, and wall insulation
 - Passive solar building systems
 - Exterior roof insulation
 - Exterior wall insulation
 - Exterior wall insulation bordering unheated space (e.g., a garage)
 - Knee wall insulation in attic
 - Floor insulation
 - Perimeter insulation
 - Storm windows/doors
 - Caulking/weatherstripping
 - Multi-glazed inserts for sliding glass doors
 - Sliding door replacements
 - Installation of French doors
 - Hollow core door replacement
 - Radiant barriers
 - Window vent conversions
 - Window replacement
 - Window shade screens
 - Low-e windows
 - Window reduction
 - Attic ventilation
 - Whole house fan
 - Passive solar design
- 1.1.5 Other Appliances**
 - Refrigerator replacements
 - Freezer replacements
 - Oven/range replacements
 - Dishwasher replacements
 - Clothes washer replacements
 - Clothes dryer replacements
 - Customer located power generation based on photovoltaic, solar thermal, biomass, wind or geothermal resources
 - Swimming pool pump replacements
 - Gasket replacements
 - Maintenance/coil cleaning
- 1.2 Commercial**
 - 1.2.1 Heating/Ventilation/Air Conditioning (HVAC)**
 - Heat pump replacement

- Fan motor efficiency
 - Resizing of chillers
 - Heat pipe retrofits in air conditioning units
 - Dehumidifiers
 - Steam trap insulation
 - Radiator thermostatic valves
 - Variable speed drive on fan motor
 - Solar assisted HVAC including ventilation, chillers, heat pumps, and desiccants
 - HVAC piping insulation
 - HVAC ductwork insulation
 - Boiler insulation
 - Automatic night setback
 - Automatic economizer cooling
 - Outside air control
 - Hot and cold deck automatic reset
 - Reheat system primary air optimization
 - Process heat recovery
 - Deadband thermostat
 - Timeclocks on circulating pumps
 - Chiller system
 - Increase condensing unit efficiency
 - Separate make-up air for exhaust hoods
 - Variable air volume system
 - Direct tower cooling (chiller strainer cycle)
 - Multiple chiller control
 - Radiant heating
 - Evaporative roof surface cooling
 - Cooling tower flow control
 - Ceiling fans
 - Evaporative cooling
 - Direct expansion cooling system
 - Heat recovery ventilation (water and air-source)
 - Set-back controls for heating/cooling
 - Make-up air control
 - Manual fan switches
 - Energy saving exhaust hood
 - Night flushing
 - Spot radiant heating
 - Terminal regulated air volume control scheme
 - Variable speed motors for HVAC system
 - Waterside economizers
 - Airside economizer
 - Gray water systems
 - Well water for cooling
- 1.2.2 Building envelope
- Insulation
 - Wall insulation
 - Floor/slab insulation
 - Roof insulation
 - Window and door upgrades, replacements, and films (to reduce solar heat gains)
 - Passive solar design
 - Earth berming
 - Shading devices and tree planting
 - High reflectivity roof coating
 - Evaporative cooling
 - Infiltration reduction
 - Weatherstripping
 - Caulking
 - Low-e windows
 - Multi-glazed windows
 - Replace glazing with insulated walls

- Thermal break window frames
 - Tinted glazing
 - Vapor barrier
 - Vestibule entry
- 1.2.3 Lighting
- Electronic ballast replacements
 - Delamping
 - Reflectors
 - Occupancy sensors
 - Daylighting with controls
 - Photovoltaic lighting
 - Efficient exterior lighting
 - Manual selective switching
 - Efficient exit signs
 - Daylighting construction
 - Cathode cutout ballasts
 - High intensity discharge luminaries
 - Outdoor light timeclock and photocell
- 1.2.4 Refrigeration
- Refrigerator replacement
 - Freezer replacement
 - Optimize heat gains to refrigerated space
 - Optimize defrost control
 - Refrigeration pressure optimization control
 - High efficiency compressors
 - Anti-condensate heater control
 - Floating head pressure
 - Hot gas defrost
 - Parallel unequal compressors
 - Variable speed compressors
 - Water cooler controls
 - Waste heat utilization
 - Air doors on refrigeration equipment
- 1.2.5 Water Heating
- Electric water heating upgrades/replacements
 - Electric water heater wraps/blankets
 - Pipe insulation
 - Solar heating and/or pre-heat units
 - Geothermal heating and/or pre-heat units
 - Circulating pump control
 - Point-of-use water heater
 - Heat recovery domestic water heater (DWH) system
 - Chemical dishwashing system
 - End-use reduction using low-flow fittings
- 1.2.6 Other end-uses and miscellaneous
- Energy management control systems for building operations
 - Customer located power based on photovoltaic, solar thermal, biomass, wind, and geothermal resources
 - Energy efficient office equipment
 - Customer-owned transformer upgrades and proper sizing
- 1.3 Industrial
- 1.3.1 Motors
- Retire inefficient motors and replace with energy efficient motors, including the use of electronic adjustable speed or variable frequency drives
 - Rebuild motors to operate more efficiently through greater contamination protection and improved magnetic materials
 - Install self-starters

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- Replace improperly sized motors
- 1.3.2 Lighting
 - Electronic ballast replacement/improvement
 - Electromagnetic ballast upgrade
 - Installation of reflectors
 - Substitution of lamps with built-in automatic cathode cut-out switches
 - Modify ballast circuits with additional impedance devices
 - Metal halide and high pressure sodium lamp retrofits
 - High pressure sodium retrofits
 - Daylighting with controls
 - Occupancy sensors
 - Delamping
 - Photovoltaic lighting
 - Two step and dimmable high intensity discharge ballast
- 1.3.3 Heating/Ventilation/Air Conditioning (HVAC)
 - Heat pump replacement/upgrade
 - Furnace upgrade/replacement
 - Fan motor efficiency
 - Resizing of chillers
 - Heat pipe retrofits on air conditioners
 - Variable speed drive on fan motor
 - Solar assisted HVAC including ventilation, chillers, heat pumps and desiccants
- 1.3.4 Industrial Processes
 - Upgrades in heat transfer equipment
 - Insulation and burner upgrades for industrial furnaces/ovens/boilers to reduce electricity loads on motors and fans
 - Insulation and redesign of piping
 - Upgrades/retrofits in condenser/evaporation equipment
 - Process air and water filtration for improved efficiency
 - Upgrades of catalytic combustors
 - Solar process heat
 - Customer located power based on photovoltaic, solar thermal, biomass, wind, and geothermal resources
 - Power factor controllers
 - Utilization of waste gas fuels
 - Steam line and steam trap repairs/upgrades
 - Compressed air system improvements/repairs
 - Industrial process heat pump
 - Optimization of equipment lubrication or maintenance
 - Resizing of process equipment for optimal energy efficiency
 - Use of unique thermodynamic power cycles
- 1.3.5 Building Envelope
 - Insulation of ceiling, walls, and ducts
 - Window and door replacement/upgrade, including thermal energy barriers
 - Caulking/weatherstripping
- 1.3.6 Water Heating
 - Electric water heater upgrades/replacements
 - Electric water heater wraps/blankets
 - Pipe insulation

- Low-flow showerheads and fittings
- Solar heating and pre-heat units
- Geothermal heating and pre-heat units
- 1.3.7 Other End-uses and miscellaneous
 - Refrigeration system retrofit/replacement
 - Energy management control systems and end use metering
 - Customer-owned transformer retrofits/replacements and proper sizing
- 1.4 Agricultural
 - 1.4.1 Space Conditioning
 - Building envelope measures
 - Efficient HVAC equipment
 - Heat pipe retrofit on air conditioners
 - System and control measures
 - Solar assisted HVAC including ventilation, chillers, heat pumps, and desiccants
 - Air-source and geothermal heat pumps replacement/upgrades
 - 1.4.2 Water heating
 - Upgrades/replacements
 - Water heater wraps/blankets
 - Pipe insulation
 - Low-flow showerheads and fittings
 - Solar heating and/or pre-heat units
 - Geothermal heating and/or pre-heat units
 - 1.4.3 Lighting
 - Electronic ballast replacements
 - Delamping
 - Reflectors
 - Occupancy sensors
 - Daylighting with controls
 - Photovoltaic lighting
 - Outdoor lighting controls
 - 1.4.4 Pumping/Irrigation
 - Pump upgrades/retrofits
 - Computerized pump control systems
 - Irrigation load management strategies
 - Irrigation pumping plants
 - Computer irrigation control
 - Surge irrigation
 - Computerized scheduling of irrigation
 - Drip irrigation systems
 - 1.4.5 Motors
 - Retire inefficient motors and replace with energy efficient motors, including the use of electronic adjustable speed and variable frequency drives
 - Rebuild motors to operate more efficiently through greater contamination protection and improved magnetic materials
 - Install self-starters
 - Replace improperly sized motors
 - 1.4.6 Other end uses
 - Ventilation fans
 - Cooling and refrigeration system upgrades
 - Grain drying using unheated air
 - Grain drying using low temperature electric
 - Customer-owned transformer retrofits/replacements and proper sizing
 - Programmable controllers for electrical farm equipment
 - Controlled livestock ventilation
 - Water heating for production agriculture